

## ABSTRACT

A lookup engine for a network device is provided to lookup an address table. The lookup engine includes a parser for getting address information of an incoming packet. A predetermined number of shift control logic is provided for  
5 generating an I.I.D hash index for the incoming packet in response to the address information of the incoming packet. The output of each shift control logic is selected by a selector for looking up an address table, thereby to generate a forwarding information. With the implementation of the shift control logic, the lookup engine can construct each flow entry and classify the incoming packets  
10 belonging to this flow in wire-speed.